

Jennifer Stock:

This is Jennifer Stock and you're listening to Ocean Currents. I bring this show once a month to KWMR, community radio, and we dive into the big, blue ocean and talk with ocean experts who share their expertise about discoveries, explorations, research, policy, and stewardship associated with the marine environment, especially in our national marine sanctuaries. This show is once a month on Thursdays at 5:30pm and rebroadcast the following Monday at 1pm on KWMR.

You can also catch archives and subscribe to a podcast at cordellbank.noaa.gov. If you're looking out on the ocean, you'd never know that there are significant geological features below all that water and all the waves. Much like the land portion of the Earth, mountains, shelves, slopes, hills, deep canyons, all these features are under the water and create significant habitats that are unique and somewhat isolated. They're treasures to be explored and starting in 2002, a collaborative of research institutions and agencies in the Monterey region set out to explore a prominent seamount known as Davidson Sea Mount off of the Big Sur coast.

Previously known as a productive area for seabirds and whales on the surface, there were many mysteries as to what existed 2400 meters below the surface. Today, we are going to talk with Dr. Andrew DeVogelaere from NOAA's Monterey Bay National Marine Sanctuary to the south of Point Reyes. As the research coordinator for the sanctuary, Andrew is responsible for all aspects of the sanctuary's research program. This includes facilitating collaboration among more than 20 research groups in the region, providing technical information to decision-makers, assessing sanctuary health with monitoring programs, and developing research on sanctuary resource management issues.

He is the director of the Sanctuary Integrated Monitoring Network, a program that assesses sanctuary health using collaborative regional monitoring programs. Andrew's main interest is to use science to develop sound resource management decisions. He earned a bachelor of arts from the University of California at Berkeley and a M.S. in marine science from Moss Landing Marine Labs and a Ph.D in biology from the University of California at Santa Cruz. So, Andrew, welcome to Ocean Currents. You're live on the air.

Andrew DeVogelaere: Hi, Jennifer. Thanks for the nice introduction.

Jennifer Stock: Well, it's impressive to do that. Thanks for sending that along. So, there are so many features on the sea floor that they're so hard to imagine. When most of us look at the water, we just see big, open water. Can you briefly start by introducing some of the different features that are on the sea floor itself?

Andrew DeVogelaere: Yeah. Well, I think like you said in your introduction, a lot of people assume that the ocean floor is a lot like the beach. It's just going out and maybe sloping down and being a flat, sandy bottom, but there are tremendous features like you described like we have on land. They're also down there in the oceans. We have off the central California coast, some very deep canyons, a couple of miles deep, very steep. One of them is the same size as the Grand Canyon and we also have undersea mountains, just the towering mountains that come up from the sea floor and technically, if they're over 3,000 feet tall, we can call them seamounts. Otherwise, they're just mountains under the sea.

Jennifer Stock: Much like Cordell Bank is not a seamount.

Andrew DeVogelaere: I guess not technically, though it has a lot of similar features in that it generates, because of its geology, some very interesting and unique biology.

Jennifer Stock: So, where is Davidson Seamount? That's the topic of the day. Can you give us a location, whereabouts where we might get a mental picture of it?

Andrew DeVogelaere: Yeah. Those of you who are familiar with the big coasts, maybe you've gone down to visit the Hearst Castle, it's about 90 miles west from there and those of you familiar with Monterey, the Monterey Peninsula, it's about 70 miles southwest into the ocean from that point of land. So, it's really not very far away and it's kind of surprising that none of us have ever looked there until the last few years.

Jennifer Stock: Now, it was discovered in 1933 by George Davidson, the coastal mapper here. How did he find it if he couldn't see it?

Andrew DeVogelaere: Yeah, you know it's interesting, in the old days they did things the hard way. They did a real nice job of it, but it was often a lot more cumbersome and time-consuming than we have now. Now, we can use sound to map the sea floor bottom and see what it looks like, but in those days you were out in a boat, you travelled a certain distance and you dropped a big lead weight on a string and saw how much string went out and then you went over to another

location and dropped a lead weight again and saw how far the string went out and then you compiled all of those string lengths to make a map and George Davidson came across a big bump in the bottom of the ocean that was actually the first sea mountain because of his description it became the first geologic feature called a seamount.

Jennifer Stock: So, that must've been quite a bit of rope or string on board his vessel. How deep, what is the very top of this mountain that he must've hit upon with this lead weight?

Andrew DeVogelaere: Right. So, it is very deep and that's really why we haven't been there. The shallowest portion of the seamount is 4,000 feet deep and then if you continue down the side of the mountain to, sort of, the bottom, the sea floor there, it's another 7,000 feet from the top of the seamount to the sea floor. So, 7,500 feet. If you were, from your radio station, going to drive up to Lake Tahoe, you'd probably be covering that height as you go over Echo Summit at about 7,500 feet.

The difference with the seamount is while it would take you a long time to drive across and up to Tahoe, you can travel that distance in the width of four miles for the Davidson Seamount. It's really only 8 miles wide.

Jennifer Stock: Wow. So, it's very vertical.

Andrew DeVogelaere: Very steep.

Jennifer Stock: So, how did you get interested in getting out there? It's pretty far outside the sanctuary boundaries. Was there any research prior about surface wildlife out there?

Andrew DeVogelaere: Yeah. Well, you know, it's interesting. A lot of biologists and scientists, if you go into their offices they have maps, they like maps and their maps are up on the wall and even though that area is outside the sanctuary one of our maps has the sea floor outside the sanctuary mapped and there's this big bump there and when we had a new superintendent he was sort of assessing things and he said, "Andrew, what's out on that area of the seafloor?" And I actually hadn't thought about it too much. I had noticed that the seamount was there.

So, that got us thinking, "Well, maybe someday we'll go out there and then there was a geologic expedition that the Monterey Bay Aquarium Institute went to look at that. There's a scientist there

named Dave Clague who studies volcanism and he went to look at the seamount as a volcano feature and as I happened to be in Moss Landing as they were coming off the ship and I noticed that they'd brought along a piece of a coral that they had found dead on the seamount and it was this big, thick thing, you know, the diameter of over 12 inches, a diameter of about 12 inches.

So, you know, pretty impressive organism and that piqued my interest and then, you know, other hints that some things might be going on out there is that wildlife viewers that like to watch birds in the bay, apparently when they wanted to see interesting offshore creatures, they would take boat trips to the Davidson Seamount to look at the birds out there and then there's a few fishermen who had told me that fishing for albacore tuna could be particularly good in that area at some times of the year. So, all of those things led to us thinking, you know, we should have a closer look. There's this new government program that then came out called The Office of Ocean Exploration, which is an interesting concept to go and explore places you've never seen before and we proposed to them that we should go and look at the Davidson Seamount and fortunately, they agreed and gave us some money to put together an expedition.

Jennifer Stock: It's amazing. So, what type of equipment is involved to do research at these great depths? I mean, it must be, you need to stay out there, it's probably too long of a distance to go back and forth to land.

Andrew DeVogelaere: Yeah. It's definitely a unique effort to work in the ocean and then to work in the ocean that deep. We went there with a special ship called the Western Flyer that's operated by the Monterey Bay Aquarium Research Institute and when it's out at sea it can open...it's a catamaran. It has a bay in the middle of the ship that they can open up and lower a remotely operated vehicle down through that hole. So, we call it...it's an R.O.V. and there's a whole lot of cable on a spool, probably just like Davidson had a...probably had a special spool for his string, otherwise it would get all tangled up. MBARI has a famous spool of wires and cables inside the Western Flyer and it's one of the few vehicles, I believe there's like, half a dozen of them in the whole world that can operate at that depth.

So, fortunately, we have MBARI as a partner to work with us in this region and they have the resources to go that deep and so associated with that, you know, there's a special machine that has to be able to deal with the huge pressures of the sea down there. You can't have any, you know, air in your cables or gas because

things would collapse. So, you know, every wire is surrounded by a tube that has some sort of oil in it and it's a complex piece of machinery that has fantastic cameras and it has a mechanical arm and it has some trays that you can collect things with.

Jennifer Stock: That's amazing and the video footage is carrying up the wires, I take it, live as you're down there, right?

Andrew DeVogelaere: Right. So, as the ROV is going down and to reach that depth, you know, it can take a couple of hours to get down there, but as it's operating then there's a room that looks a little bit like what you might imagine might be in a NASA space center or something. It's a dark room with, you know, 20 or so video monitors and there's a couple of pilots. One of them that is, what we call, flying the ROV and another one that has his arm inside this mechanical brace and as they move their arm, the ROV arm moves and they can pick things up, pinch them lightly or pick up an organism or they can grab something hard and break a rock and so the pilots are working in tandem while the scientists are sitting next to them operating some of the cameras and making decisions about what sorts of activities should be going on.

So, there's a lot of discussion, a lot of instrumentation that we can measure depth and temperature on the ROV and then, really, the whole ship is wired so that in every room on the ship somebody can turn the channels on the TV. They won't see a regular TV station, but they'll see what the different cameras on the ROV are looking at and what it looks like on different parts of the ship. So, somebody who's on a break and not having their turn in the command center there can watch a TV and if they see an organism that they want to collect or they want to know some things about, they can run down and get involved with the process or they can pick up the phone and call the scientist that's working at the control.

Jennifer Stock: It's pretty cool. When...I did a tour of the Western Flyer and I remember seeing a big monitor in the galley area. So, you could be eating breakfast and watching what's going on down below. It's pretty exciting.

Andrew DeVogelaere: Yeah. It is and it's funny in that there are different people that are excited about different things. I was in the control room once and we were going along and there was this fish and I didn't think too much about it because I don't know that much about fish, but Dr. Greg Cailliet from Moss Landing Marine Labs all of a sudden, he must have been watching the TV, he came shouting down the hallway and coming down the steps and saying, you know, that

was a bathychownex and it was the first live species ever seen and he was really excited. So, we collected it to try to bring it back to the Monterey Bay Aquarium.

Jennifer Stock: That's amazing. It sounds like a lot of fun in addition to exciting and so worthwhile. For those just tuning in, you're listening to KWMR and this is Ocean Currents and we're talking with Dr. Andrew DeVogelaere from the Monterey Bay National Marine Sanctuary about Davidson Seamount. So, one thing you said earlier, Andrew, was sometimes it takes a couple hours for this ROV to get down to those depths. There must be some really cool things, you mentioned a fish earlier, on the way down. Are scientists watching kind of the changes in the zones as you go down into the darkness?

Andrew DeVogelaere: Yeah, we sure are and there's...sometimes there's a lot of blue as you're going through, you know, pretty open space of ocean, but there's often a lot of what we call marine snow and that's the debris of plankton and other organisms that are constantly forming and drifting down to the bottom of the sea where other organisms at the bottom are filtering it out and eating it. So, there's a lot of marine snow and then there's a lot of gelatinous creatures that are gathering this marine snow and other fish that are swimming by. There's a whole food chain in the water column and what we saw that's interesting, in my mind this year, is that every time we dove down, we came across the jumbo squid.

It's a large squid, also called the Humboldt squid, that was actively feeding and moving around near the sea surface. It can be a...it apparently can be an aggressive squid and at one point they actually rushed the ROV in some way, sort of attacking it. So, we got that caught on camera and it was exciting for us. We have the BBC aboard with us on the last trip. So, they spent a lot of time wanting to drift just above the seamount to look at some of these gorgeous jellyfish-like creatures, some of them that actually reflect light enough that, you know, it looks like something you'd see on the Las Vegas strip with bright, blinking lights of all sorts of different colors.

So, there's a lot to view there and at the very surface it's an interesting place for birds and mammals. So, we'll see the albatross, the black-footed albatross, has one of the largest wingspans in the world and we were also trying to on one of our cruises collect skin samples on the sperm whale to know if there's different genetic populations onshore and offshore. So, above seamounts you can find different types of wildlife, you know, birds, mammals, and

then you have a whole different series of organisms as you go from the more lit portions of the ocean to the deeper and then once you hit the seamount there's a zonation from the top of the seamount to the bottom as well.

Jennifer Stock: So, once you actually hit the seamount are you seeing life immediately? That is a huge mountain. From the bottom of the ocean to the top of it it's about 4,000 feet. What's the...

Andrew DeVogelaere: It's actually, yeah, from the bottom of the ocean to the top of the seamount, 7,500. Then it's another 4,000 to the top, but, yeah. Well, that was...when we first went out there, we decided what we'd do is go to the bottom and then just work up the side of it and describe everything we could see in the videos and to date we've done 16 dives and we've recorded 60,000 organisms that we've seen and it turns out that there's about 170 different ones that we've noticed so far, but they're very different from the bottom to the top and at the bottom we would see things like sea cucumbers. One of the more interesting organisms we saw was something called a sea spider.

We find them in the rocky shores here in central California, but they're much bigger in the deep sea. You know, I would say these were about maybe 12 inches across. So, a large spider-like creature that when it'd start moving would actually start swimming through the water. We saw some interesting fish with names like, you know, the halosaur and we saw some angler-type fish along the sides, but what everybody...it turns out that what we're often anticipating the most was reaching the ridges and the top.

We never know really what we were going to see, but, you know, out from the black, because it's pitch black down there, all of a sudden the light, you'd see these very bright colors of yellow, pink, and white and we saw these fantastic sponges and corals, you know, some of them 8 feet tall. Some of these sponges look as big as a sofa and all these bright, different colors and they're mostly up at the top because it looks like they're orienting themselves into the currents so that they can filter out as much food from that position, a lot more, if they're at the top facing into the currents like an organism might into the wind so that there's a lot more drifting and that they can collect and eat.

Jennifer Stock: So, they're mainly eating, you said that snow, that detrital stuff that's drifting through in the water?

Andrew DeVogelaere: Yes. That's what the corals are eating and that's what the sponges

are filtering out those as well as bacteria and some other things. So, what your viewers or your listeners might be surprised about is that, I think when most people think of corals they're thinking maybe of snorkeling in Hawaii or some things like that, but way deep down in the ocean where it's completely black and the temperature of the water is not much above freezing there are these giant corals down there and giant sponges that are living in anonymity, I guess, until we came across them at the Davidson Seamount.

Jennifer Stock: How old do you estimate some of these corals and sponges? You're describing these sizes that are just huge and immense. They must be fairly old.

Andrew DeVogelaere: Yeah, well that was...once we did find out that those corals were there we wanted to bring some aging experts out with us to help us collect some samples and try to determine their ages and it turns out some of these corals are ancient. We don't know exactly their ages yet, but some of them are clearly over 200 years old. So, they're large, they're old, they're relatively fragile. So, if they do get disturbed, it's not something that would recover in our lifetimes, anyway.

So, it turns out in, sort of, seamount ecology and deep sea ecology that these organisms are fragile. They provide habitats for other organisms and they're old and it would take them a long time to recover if they were disturbed.

Jennifer Stock: Are there scientists that study different environmental patterns in aging corals or sponges? Like, studying different environmental conditions that might have existed in some of the older species? I mean, they're only 200 years old, that's not really an ice age or anything like that, but is that possible to do in some of these older animals?

Andrew DeVogelaere: Yeah, you know, that is something that I think is done a lot in sort of more of the warm water corals. I know that some of the colonies, big colonies, of these corals can be several thousand years old. So, there's markers in these reefs. It's not something I know a lot about and I don't think it's something that's done so much in the deep sea, but some things we're going to be watching for in terms of environmental events in the deep sea is that it's just coming out now that with the increased CO₂ in the atmosphere, that CO₂ is increasing in the deep sea and it's becoming more acid, which could cause a real problem for corals that have calcium carbonate inside their skeletal structures.

So, we're going to be, you know, returning to these places and hopefully not detecting changes, but that could be something that might be cropping up in the next few decades as a problem.

Jennifer Stock: Wow, that's really interesting to think about that everything's connected and you think things are a little bit more protected down there in the depths, but really, not for much longer than anything else at the surface.

Andrew DeVogelaere: Yeah. Certainly one of the reasons we were interested in the place was that it was apparently pristine and untouched and then we're finding out with some modeling and some new samples from the deep sea that CO2 might be increasing and sort of on a curiosity scale, we did see traces of humans out there in terms of...we found an old milk bottle that, it turns out it was from a historic dairy around Point Reyes and I think the dairy used to supply the Navy with milk.

Jennifer Stock: You're kidding, right?

Andrew DeVogelaere: No, no.

Jennifer Stock: How do you know it was from Point Reyes?

Andrew DeVogelaere: Well, it had a label on it and it was one of these old bottles where they didn't use paper labels, but they put the insignia right into the glass and one of the people on the cruise did some research and associated with a dairy up there.

Jennifer Stock: That is amazing.

Andrew DeVogelaere: We also found a Coke bottle with some writing on it that we couldn't figure out until we realized that looking at the web that is Korean writing for Coke. We found an Olympia beer can and a broom and a newspaper. So, it could be that the organisms down there knew something about us long before we knew about them if things are drifting down from the top, but I don't think those are real problems, they're just more a curiosity.

Jennifer Stock: What were some other interesting finds they found on the bottom. Were there any large carcasses of huge mammals that might be sitting down there?

Andrew DeVogelaere: Yeah. You know, we didn't see any large carcasses, though any drift or debris that we did come across did sort of have an aggregation of organisms on it. I think that there's not much food

down there and when something does happen, the organisms that are living there sort of gravitate to it and maybe the best example of that is even though it is, you know, 80, 90 miles offshore, we did see some kelp out there that had obviously come from the kelp beds near the shoreline, drifted out, and sank. So, there is some link between the near coast and the offshore coast.

We also found out, again, from our geologist when we were collecting rocks that this is an ancient volcano. It's not active now and most of the rock is volcanic, but when we picked up some rock samples, some of them were from the origin of the coastline, some sandstone or something. So, somehow rocks are getting from the coast out to the seamount and there are certain guesses about how that might happen. Maybe they're attached to the kelp that then floats out and sinks. There's other ideas that mammals sometimes eat rocks and small boulders to maintain balance in the water, then they pass them and then they, you know, they go down to the sea mount and, you know, that seemed a little far-fetched to me.

As it would happen very often, because we found a fair number of these, but if you figure the seamount is about, you know, 12 million years old, if it happens once a year, 12 million rocks, I'd guess you'd start to run across them pretty often.

Jennifer Stock: That's amazing. There are so many questions that can be looked at just by studying and having seen these things. The kelp thing is fascinating. It's just so deep and you'd think it would get eaten before it got there.

Andrew DeVogelaere: Yeah, somehow these things happen. So, you know it's a big mystery. I know, you know, maybe not everybody notices it, but I certainly do as a scientist is whenever you go to answer one question, you come up with ten more and certainly when you're going around the bottom of the ocean where nobody has ever looked before, it adds a lot of excitement, but everywhere you look, you know, there's a new thing to figure out.

Jennifer Stock: Amazing. That's really exciting. So, were you surprised by any of the findings on this cruise while you were observing the ROV footage?

Andrew DeVogelaere: Well, I think that what piqued my interest the most was the corals, their size, of course, their beauty. We had a whole series of questions about, you know, what determines where they are located and so what we tried to do in our last cruise was...there's now better and better mapping of the sea floor and we wanted to

correlate exact locations of these corals with the different features on the bottom and even though there's a seamount and the whole thing's pretty steep, some of the corals were clearly located right on the ridges and at the top of what we called the cones and so we're trying to figure out, you know, what is it about the substrate type, what is it about the currents...we brought current meters down there that we measured currents in a large-scale at the top of the seamount and small scales right around the corals and so my thought, "Well we'll have that all figured out. They're obviously all living right there on the tops of the cones," but as we went to do more detailed measurements, we found that in some of the valleys at the top of the seamounts there were a lot of corals, but there were different types.

So, the different types of corals are finding the different types of spots that work just for them and trying to figure out these patterns is fun and exciting.

Jennifer Stock: That's really cool. What is the importance to marine biologists in general about taking the effort and time to study Davidson Seamount? There's been less than maybe a tenth of seamounts really explored and so what are some of the outcomes of this for the larger marine science community?

Andrew DeVogelaere: Yeah, well, that's an interesting question. You can sort of answer it a couple of ways, but I'll start with one way that might interest your listeners, those budding scientists out there in that we estimate there are about 30,000 seamounts around the world and actually less than 1... point 1 percent of them have been explored. So, first of all, there's a tremendous amount of area to be explored out there for your explorers and we also know that associated with seamounts, there's a fair amount of endemism. So, things that are found on one seamount are probably not likely or it's likely that they're not found on the other seamounts.

So, there's a tremendous amount of diversity down there that's not known. For example, from the Davidson Seamount, we know we've got 9 new species, never been described by science and we think there might be 11 more, but in terms of corals there's only about maybe less than 10 coral taxonomists in the world that can identify these things. So, if you're interested in identifying corals maybe that's a field you might want to get into. So, there's a lot of seamounts, there's a lot to be explored and on all of those seamounts with those unique species there are opportunities for a field called bio-prospecting.

When you look at natural organisms and see if there's any kind of chemistry involved in them that might be useful to humans. So, some sponges are being looked at as maybe helping treat cancer. There are some organisms that might be used as a natural pesticide and these things are...corals and sponges are often looked at for these things because nothing grows on them. There's got to be some reason nothing is growing on them. Is there some sort of toxic substance?

So, there's a lot of opportunities for studying the biology of these species and then, not just harvesting the ocean for them, but developing ways of creating these chemicals synthetically. So, that's one of the opportunities there. The other is just an opportunity to educate the public about new places in the world and get them excited about it and so the sanctuary wanted to go out there...we don't have seamounts in any of our sanctuaries and by including this one in the Monterey Bay National Marine Sanctuary, which is something that the regional public is interested in us doing, we can continue to teach people about the oceans and the seamounts within them.

Jennifer Stock: So, you've done two cruises out there and gathered tons of information and I know that Monterey Bay has been very active in pursuing inclusion of the Davidson Seamount in the Monterey Bay National Marine Sanctuary. How...when do you think this will be decided upon? I know there's been a lot of public review and do you think it's fairly likely that this will be included in the sanctuary?

Andrew DeVogelaere: Well, what we found is that there was a lot of public support for this in our public process. We have a management process it's just like the one that's going on in Cordell Bank. We've also found that the Civic Fisheries Management Council has taken an interest in this area and based on our studies, they've actually changed regulations to make the Davidson Seamount an essential fish habitat and limit some of the destructive bottom-trawling that might happen there in the future like is happening in some other place. So, some protection measures have been taken. Our sanctuary advisory council, which are representatives from the public, has looked favorably on including the Davidson Seamount in the sanctuary.

So, it looks like things are going in that direction. I think a decision will be made sometime, hopefully before next summer.

Jennifer Stock: So, what are some of the protections that David Seamount will get if it gets included in the sanctuary?

Andrew DeVogelaere: Yeah. So, part of it is protection, but part of it is also the opportunity to educate and do research. In terms of protection, it's not going to limit any fishing up at the surface. Most of the fishing that happens there is in the top, you know, fifty feet of water, but we're just going to have...it's proposed to have a thousand foot buffer zone around the sea mount where there couldn't be any collecting. So, that would be the protection of the sanctuary, but I think most...probably most useful for the public would be having a seamount in the sanctuary program.

So, the sanctuary program, which is one of the very few ocean programs that the United States of America has with a mandate to educate can use an opportunity to continue doing education about seamounts.

Jennifer Stock: Yeah. It's been so exciting to see the online logs that the sanctuary created as part of these missions. Do you happen to have the website that's available for people if they want to read up on the missions or these really cool summaries of the day and what people are finding and incredible pictures? Why don't you share that website?

Andrew DeVogelaere: Sure. You know, I think some of these web addresses are a little bit long. So, what might be best is to get on a search engine like Google and do a search for Simon, S-I-M-O-N space Sanctuary and that'll bring you into the Simon website and from there you can look on the habitats on the left side of the page and look for Davidson Seamount and it'll take you to all of the, some of the projects that have happened there, and all of the related weblinks. There's some fun ones like there was a school in Berkeley, the School of the Madeleine, that had students do artwork of what they thought Davidson Seamount might look like. So, the MBARI website that you can find from that location has those posted.

There's lots of images. If you look again from the Simon site into the photo database, your listeners can download high-quality, high-resolution images for free and use them however they'd like to and they're some of the best deep-sea pictures that are available out there and we're seeing the Davidson Seamount used in publications around the world because not many of them have been looked at and they're high quality pictures. In fact, for those of your listeners who watch TV and look for the Discovery Channel, there's a program coming up at the end of March called Planet Earth and it was developed by the BBC. It'll be showing on the Discovery Channel and one of their episodes is called Ocean Deep and they

cover seamounts in that section and I'd say that probably 98 percentage of the footage on the seamounts is from the Davidson Seamount.

Jennifer Stock: Wonderful. So, that's at the end of the March on BBC, probably played on local community, national public television.

Andrew DeVogelaere: Well, it's actually going to be on the Discovery Channel.

Jennifer Stock: Okay.

Andrew DeVogelaere: So, end of March look around the Discovery Channel. I think it's a twelve-episode series that'll run through April or something like that.

Jennifer Stock: Wonderful. Thanks for letting us know about that. So, Andrew, one of the questions I ask most of the guests that come on, I've only forgotten to ask it once, is what do you feel you'd like listeners to know about their everyday role in protecting the ocean?

Andrew DeVogelaere: Yeah, that's interesting. What would their everyday role be and I think that just by understanding a little bit about the ocean, enjoying it by going, enjoying it by, you know, reading up on it, listening to these kinds of programs, that just by being aware of it, they'll become aware of...I think that they'll be excited by it and they'll love it and then they'll see as they pick something they're particularly interested in that there are opportunities to help out. Whether it's being involved with a beach cleanup or, you know, what is amazingly influential is when people take the time to write a letter to their congressman or senator.

You know, a heartfelt, sort of, handwritten or typed letter that says that you care about the oceans and you want to study and protect them. You know, that's something that can go a long way.

Jennifer Stock: Well, I want to thank you very much for coming on the show today and also, thank you for all your work in the marine science field because we, as educators, need to have these cool explorations and information and science to share to get people excited. So, thanks so much for your role both as a scientist and for coming on the show today.

Andrew DeVogelaere: Okay, well thanks, Jennifer. It was fun.

Jennifer Stock: And for the rest of the show I brought in our sanctuary advisory council coordinator for Cordell Bank National Sanctuary Rowena Forest, and Rowena is, Rowena are you here?

Rowena Forest: I'm here. Hello, west Marin!

Jennifer Stock: Rowena coordinates our sanctuary advisory council and I wanted to just bring her in so she could give us a little bit of an update of what the council is. So, Rowena, can you describe what is the sanctuary advisory council and what do they do?

Rowena Forest: The sanctuary advisory council is a community-based advisory group, which is established to provide advice and recommendations to the superintendent of the national marine sanctuaries around the country and they provide advice on management of the sanctuaries including operations and projects such as involving education and outreach, research and science, regulations and enforcement, and management planning, and we work at Cordell Bank National Marine Sanctuary and our advisory council was established in 2002 and it was established originally to support the joint management plan review process currently, which is currently still underway for Cordell Bank National Marine Sanctuary as well as Gulf of the Farallones and Monterey Bay National Marine Sanctuaries

Jennifer Stock: We're almost done with it.

Rowena Forest: Yes, we are. It's been several years.

Jennifer Stock: How many meetings do you have throughout the year?

Rowena Forest: We have approximately, it varies year to year, four meetings and one retreat. All meetings are open to the public other than the retreat and when they're not open to the public, we do not vote on any issues or pass any measures. We simply have a retreat to get training or to celebrate something that was accomplished by the council, but otherwise, we have about four public meetings a year.

Jennifer Stock: And usually they're held in the west Marin-Sonoma region, right?

Rowena Forest: Yes, usually we're actually specifically, we're usually at the Red Barn classroom at Point Reyes National Seashore or Bodega Marine Lab and we're going to expand. We're going to be heading to Petaluma this year as well and we've threatened to meet at the Bolinas Rod and Boat club, locations such as that around West Marin and West Sonoma.

Jennifer Stock: Oh, that's great. So, what's coming up? You have a meeting coming up March 13th on Tuesday at the Bodega Marine Lab...

Rowena Forest: Yes, we do.

Jennifer Stock: ..can you give us a brief overview of the agenda?

Rowena Forest: Our meetings start at 9:30 and again, the public is really encouraged to attend and we're always in beautiful locations and there's a public comment carried in the morning and we take care of sanctuary council business for the first half and then we usual have either professional presentations to educate the advisory council or some sort of panel discussion and this one coming up is a particularly important meeting. We have two major topics that we're going to approach. One is the boundary of the national marine sanctuary expansion bill and a mini-panel discussion which is going to concern supporting west Marin and West Sonoma heritage fishing communities, in particular Bolinas and Bodega Bay, and low-impact fishing methods at Cordell Bank and I can expand a little bit on the sanctuary boundary expansion if you would like me to.

Jennifer Stock: Sure. So, who's presenting on that?

Rowena Forest: Well, the panel discussion concerning the small-port fisheries and owner-operator fishing communities is going to be Rod Fujita from the environmental defense organization and Zeke Grader from the Pacific Coast Federation of Fishermen Association from San Francisco. So, they're both fabulous presenters and they work well together and it'll be a good opportunity for the public as well as the maritime heritage seats, the fishing community and the maritime heritage seats on the council to really interact with these two gentlemen.

Jennifer Stock: It sounds like it's going to be a really interesting talk and for the sanctuary expansion bill, who will be presenting about that?

Rowena Forest: We're going to have Tom Roth from congresswoman Lynn Woolsey's office and he will be giving us an update on this bill and just briefly, the congresswoman Lynn Woolsey and congressman Wayne Gilcrest introduced this bill on February 20th, 2007. It's very recent. It's been in the works for several years, but that was introduced to the House of Representatives and that's to expand the boundaries of the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries and it's also supported by Senator Barbara

Boxer and it'll be introduced as a companion bill in the Senate as well and it's been referred to the house committee on natural resources.

Jennifer Stock: Wow, that's pretty exciting. Well, it'll be interesting to hear from Tom Roth on that and we hope that folks can attend this meeting or come to meetings in the future. Where can folks learn more about other upcoming sanctuary advisory council meetings?

Rowena Forest: I'll briefly give our schedule. Throughout the year, we're going to be meeting on locations are to be announced and you can find it on our website, which is cordellbank.noaa.gov and we're on the sidebar under advisory council and we have a whole meeting schedule listed there and as we get our locations set up, it's updated regularly and we're going to be meeting June 7th, September 12th, and December 6th was the other dates for this year.

Jennifer Stock: Excellent. So, there are a couple of different seats on the council. Can you just briefly remind me what were the different seats? What do they represent? You said research, education...

Rowena Forest: Research, education, conservation, community-at-large, there's a community-at-large Sonoma and Marin county seat and maritime activities. As well as we have government seats, which are non-voting seats and they are filled by national marine fisheries service and the United States Coast Guard and they've been providing wonderful advice and educating the council well.

Jennifer Stock: Are there seats that ever open up?

Rowena Forest: Yeah.

Jennifer Stock: When would seats be opening up again?

Rowena Forest: Very soon. We're going to have an opening for the Marin County Community-at-Large seat. So, we really encourage everybody to pay attention to the website and to apply for that seat when it comes open and there will be full instructions on our website on how to apply and get your resume in to us at the marine sanctuary.

Jennifer Stock: Thank you very much, Rowena, that's a great update from the sanctuary advisory council.

Rowena Forest: You're welcome. Come to our meeting!

Jennifer Stock:

Yeah! The sanctuary advisory council has also been just so instrumental in helping guide what we're doing, but this management plan that we've been doing for the past few years, we have really had incredible support from the council members representing their constituencies. So, if any of them are listening, we're so happy that you are helping us out and volunteering. Seamounts and other underwater features play a role in creating the productivity for this region. On the next show on Ocean Currents on April 5th, we'll be talking with Dr. John Largier from the Bodega Marine Laboratory about the Ocean Currents in this region and so all the processes that are on top of the water and how they interact with the seamounts we talked about today.

We're going to talk about on April 5th with John and hear about a new oceanographic tool being put in the Cordell Bank National Marine Sanctuary. So, please tune in on April 5th. Thanks for joining me today on Ocean Currents.